African Invertebrates 57(1): 67–81 (2016)
doi: 10.3897/AfrInvertebr.57.8696
http://africaninvertebrates.pensoft.net

RESEARCH ARTICLE

African Invertebrates
A journal of biodiversity research

A review of the genus *Gibbasilus* Londt, 1986 in southern Africa (Diptera, Asilidae)

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Academic editor: *Pavel Stoev* | Received 1 April 2016 | Accepted 16 May 2016 | Published 8 July 2016

http://zoobank.org/17A94A50-84C2-469D-AE1D-A9E2A78C502B

Citation: Londt JGH (2016) A review of the genus *Gibbasilus* Londt, 1986 in southern Africa (Diptera, Asilidae). African Invertebrates 57(1): 67–81. doi: 10.3897/AfrInvertebr.57.8696

Abstract

Gibbasilus Londt, 1986, a small genus of asiline Asilidae endemic to the Western Cape Province of South Africa, is taxonomically revised. Three species are described for the first time (*alboala*, *condylus*, *crinitus*) and added to those already known (*arenaceus*, *brevicolis*, *centrolobus*). A key for the identification of species is provided. Little is known of their biology, but a close association with species of Restionaceae, a dominant element of the Cape Floristic Region, has been observed. It is suspected that females, which possess long, laterally compressed, knife-like ovipositors, use these plants as oviposition sites.

Keywords

Afrotropical, Asilidae, Asilinae, *Gibbasilus*, new species, Restionaceae

Introduction

The acquisition of interesting new material representative of the distinctive South African asilid genus *Gibbasilus* Londt, 1986, gave rise to the need to provide a new taxonomic perspective on the genus whose history is brief and can be summarised as follows:

Londt (1986) – Described *Gibbasilus* and type species (*arenaceus*) using material collected from the Western Cape Province of South Africa.

Londt (1990) – Added a further two Western Cape species to the genus (*brevicolis*, *centrolobus*).

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Londt (2005) – Discussed the genus and included it in a key to Afrotropical Apocleinae (now considered part of the subfamily Asilinae).

At the commencement of this study there were therefore only three species included in the genus. New material which has been incorporated into the KwaZulu-Natal Museum's, collection over the last 25 years allows a further three species to be described. All are to be found in a relatively small region of the Western Cape Province of South Africa.

Material and methods

Much of the material previously recorded by Londt (1986, 1990) has been re-examined and included in the lists of material supplied for each species and marked with either an asterisk (*) for 1986 material or a crosshatch (#) for 1990 published material. While a few specimens are housed in other collections, the vast majority are stored in the KwaZulu-Natal Museum (NMSA), Pietermaritzburg. Other institutional abbreviations used in this paper are: BMNH (The Natural History Museum, London, U.K.) and SAM (Iziko South African Museum, Cape Town, South Africa). Label data is cited as it appears on labels, lines of data being separated by a slash (/). While more recently collected specimens are usually provided with detailed information relating to locality and habitat, it has been necessary to attempt to establish precise geographic coordinates for older or poorly documented material in order to gain a better appreciation of the distribution. Google Earth and the Internet have been used to accomplish this. All information not supplied on labels appears in square brackets.

Illustrations provided are designed to complement those of Londt (1986, 1990) which should be consulted when comparisons are made. Male terminalia were excised and cleared in heated Potassium Hydroxide (KOH) before being drawn with the aid of a drawing tube. Female terminalia were not excised for illustration. Standard abbreviations and terminology are used, chiefly in accordance with McAlpine (1981).

Results

Taxonomy

Gibbasilus Londt, 1986

Gibbasilus Londt, 1986: 2. Type species: *Gibbasilus arenaceus* Londt, 1986, by original designation and monotypy.

Diagnosis (modified from Londt 1986)**.** Asiline flies displaying the following combination of characters. *Head*: Face plane, not gently convex; dorsal occipital macrosetae

Figure 1. General appearance of a fairly typical *Gibbasilus* (*G. condylus* sp. n.) male.

long, proclinate. *Thorax*: Mesonotum strongly humped; acrostichal setae long, well developed, tightly packed and arranged in a narrow strip; scutellum with a single pair of apical scutellar macrosetae; discal cell ($1m_2$) of wing not markedly constricted at midlength (as in *Synolcus* Loew, 1858); male wing with costal region not markedly expanded (as in some *Dasophrys* Loew, 1858). *Abdomen*: Female ovipositor long (more than twice as long as broad in lateral aspect) and laterally compressed. Figure 1 illustrates a fairly typical male of the genus.

***Gibbasilus alboala* sp. n.**
http://zoobank.org/7870527B-1D2D-4F8D-9103-65C45BE6626D
Figs 2–6, 20B

Etymology. L. *albus* – white, *ala* – f. wing; refers to the milky white, opaque bases to the wings.

Description. Based on 2♂ specimens, ♀ unknown.

Head: Black, fine silver pruinose, black, pale yellow and white setose. Antenna: Black, fine silver pruinose, scape and pedicel black setose. Segmental ratios (scape as 1) = 1 : 0.6 : 1.2 : 0.7 (elements of style = 0.1, 0.5, 0.1). Style composed of three elements (small basal segment-like element, long middle rod-like element, terminal seta-like sensory element). Face black, fine dull silver pruinose, profile plane (straight, no

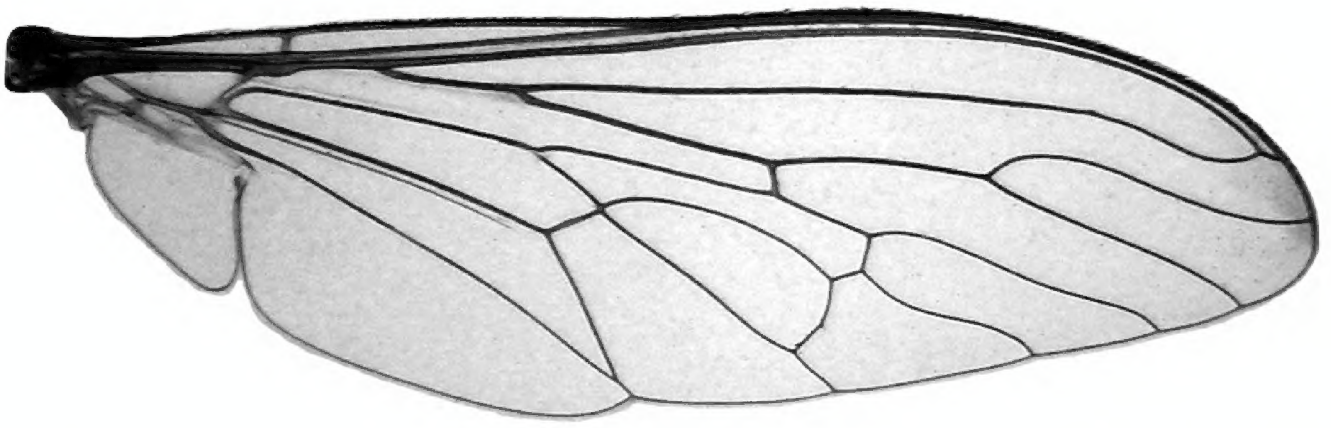
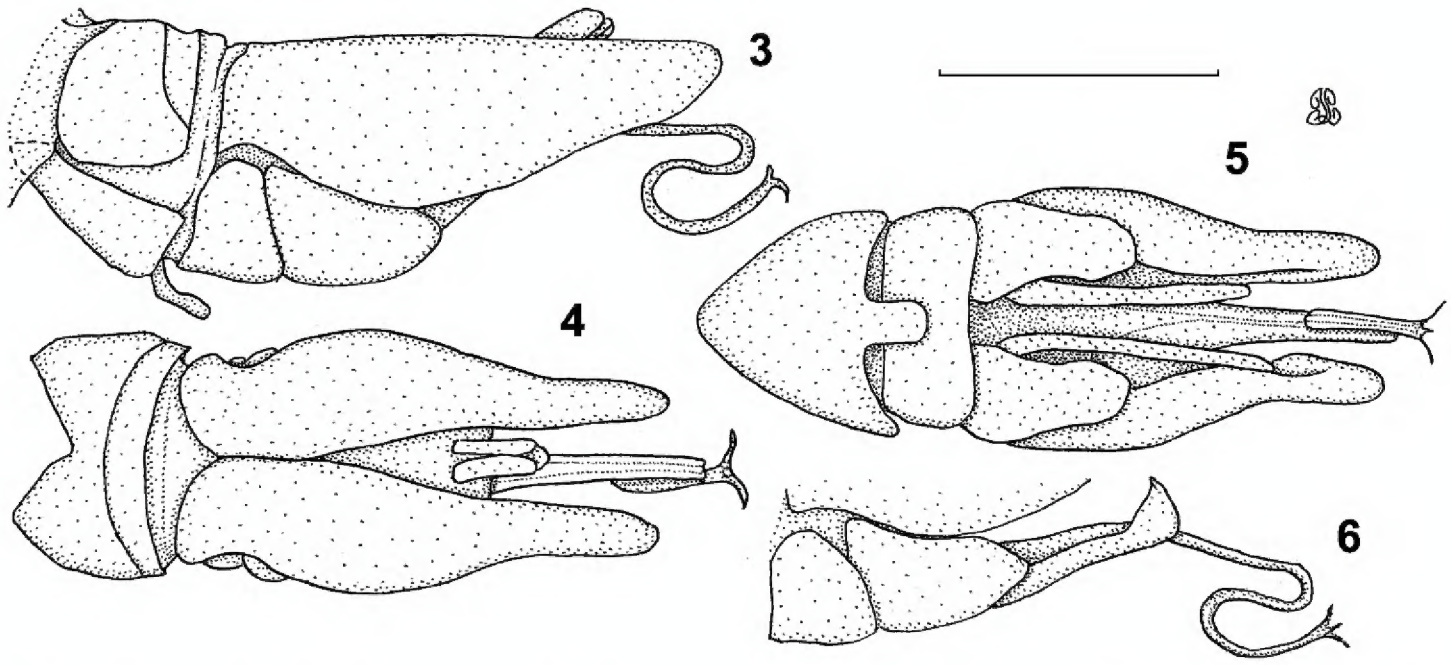


Figure 2. *Gibbasilus alboala* sp. n. ♂ wing (note backlighting obliterates opaque, milky basal membranes).

gibbosity evident). Mystax long, well-developed, extending from epistomal margin to antennal sockets, macrosetae pale yellow along epistomal margin, otherwise all black. Frons and vertex black, dull silver pruinose, fine, long, black setose. Ocellar tubercle with long, fine, black setae. Occipital region black, silver pruinose, black setose dorsally, pale yellow laterally, fine white setose ventrally. Palpi 2-segmented, segment 1 white setose, 2 black setose. Proboscis shiny black, fine white setose.

Thorax: Dark red-brown to black, fine, dull, silver pruinose, black, pale orange, pale yellow and white setose. Pronotum black, white setose. Mesonotum black, entirely dull silver pruinose. Acrostichals numerous, mane-like, predominantly black except for few white setae anteriorly and a cluster of fine white setae posteriorly. Dorsocentrals well-developed, black, extending both anterior and posterior of transverse suture. Mesonotal macrosetae: Strong, pale orange, 2 npl, 2 spal, 1 pal. Scutellum black, entirely dull silver pruinose; disc fine white setose, 2 long, black apical scutellar macrosetae. Pleura: Dark red-brown to black, entirely dull silver pruinose, pale yellow and white setose. Katatergal setae weak, pale yellowish. Anatergites uniformly dull silver pruinose, asetose. Mediotergite weakly fine white setose medially. Legs: Coxae dark red-brown to black, fine, dull silver pruinose, fine white setose. Trochanters shiny black, apruinose, fine white setose. Femora slightly inflated, dark red-brown to black except for narrow orange distal tip, macrosetae mostly yellowish (except for 3–5 black proximoventral setae on fore femora). Tibiae mostly brown-orange becoming progressively darker distally, macrosetae mostly orange (a few black at distal tip). Tarsi dark red-brown with black and orange macrosetae. Claws dark red-brown to black, pulvilli and empodia well developed, orange. Wings (Fig. 2): Holotype 6.7 × 2.5 mm, paratype 6.1 × 2.2 mm. Veins brown, cells r_1 m_3 and cua closed and stalked, membrane unstained, entirely transparent except for partly opaque, milky proximal region (including whole of cells bm, cua, and cup and proximal part of br), microtrichia absent. Halter pale yellow to orange.

Abdomen: Entirely dark red-brown to black, extensively dull silver pruinose, except lateral margins of T2 and T3 which are shiny apruinose. Terga fine short white setose, T1–4 with 1–2 laterally situated pale yellow macrosetae (progressively diminishing in size towards terminalia). Sterna fine, longish setose. ♂ genitalia (Figs 3–6): Epandrium



Figures 3–6. *Gibbasilus alboala* sp. n. ♂ terminalia, lateral (**3**), dorsal (**4**), ventral (**5**), detail of gonostylus and aedeagus (**6**).

about three times longer than deep in lateral view, with widest part proximal to midlength; moderately broadly rounded distally; lobes gradually diverging distally in dorsal view. Gonocoxite not quite ⅓ as long as epandrium, smoothly rounded distally. Gonostylus elongate, almost half the length of epandrium, of approximately same width for entire length in ventral view, distally with a subtriangular upwardly directed process, best appreciated in lateral view. Hypandrium short, almost three times wider than long in ventral view, distal margin very slightly indented medially. Aedeagus long and thin, slightly dorsoventrally compressed, S-shaped distally, terminating in a 3-pronged tip. Posterior margin of S8 slightly indented medially with a terminal, subrectangular, dorsoventrally compressed process projecting to approximately midlength of hypandrium. ♀ unknown.

Holotype. SOUTH AFRICA: 1♂ "S Africa: Cape #69 / 1 km W Nieuwoudtville / 31°23'S, 19°06'E 800 m / Date: 4.xi.1991 / Coll: J.G.H. Londt / Caravan Park and area" (NMSA).

Paratype. 1♂ with identical label (NMSA).

Remarks. This species bears a strong resemblance to *condylus* sp. n., described below, but is immediately recognised by the milky white bases to the wings. This condition, although unique within *Gibbasilus*, is encountered in other asilid genera such as *Hypenetes* Loew, 1858 (Londt 1985). While it remains possible that the possession of milky wing bases is a variable character I consider *alboala* and *condylus* to represent separate taxa until shown otherwise. In the absence of females it is not known if milky wing bases are confined to males.

Distribution (Fig. 20B), phenology (Table 1) and biology. Known only from the type locality. Collected in November. The general habitat consisted of endemic fynbos plant species and large boulders.

Table 1. Phenology of *Gibbasilus* species. Months, starting at July, abbreviated as shown.

	J	A	S	O	N	D	J	F	M	A	M	J
alboala	-	-	-	-	●	-	-	-	-	-	-	-
arenaceus	-	-	●	●	●	-	-	-	-	-	-	-
brevicolis	-	-	●	-	-	-	-	-	-	-	-	-
centrolobus	-	-	●	-	●	-	-	-	-	-	-	-
condylus	-	-	-	-	●	-	-	-	-	-	-	-
crinitus	-	-	●	-	●	-	-	-	-	-	-	-

Gibbasilus arenaceus Londt, 1986

Figs 7, 20A

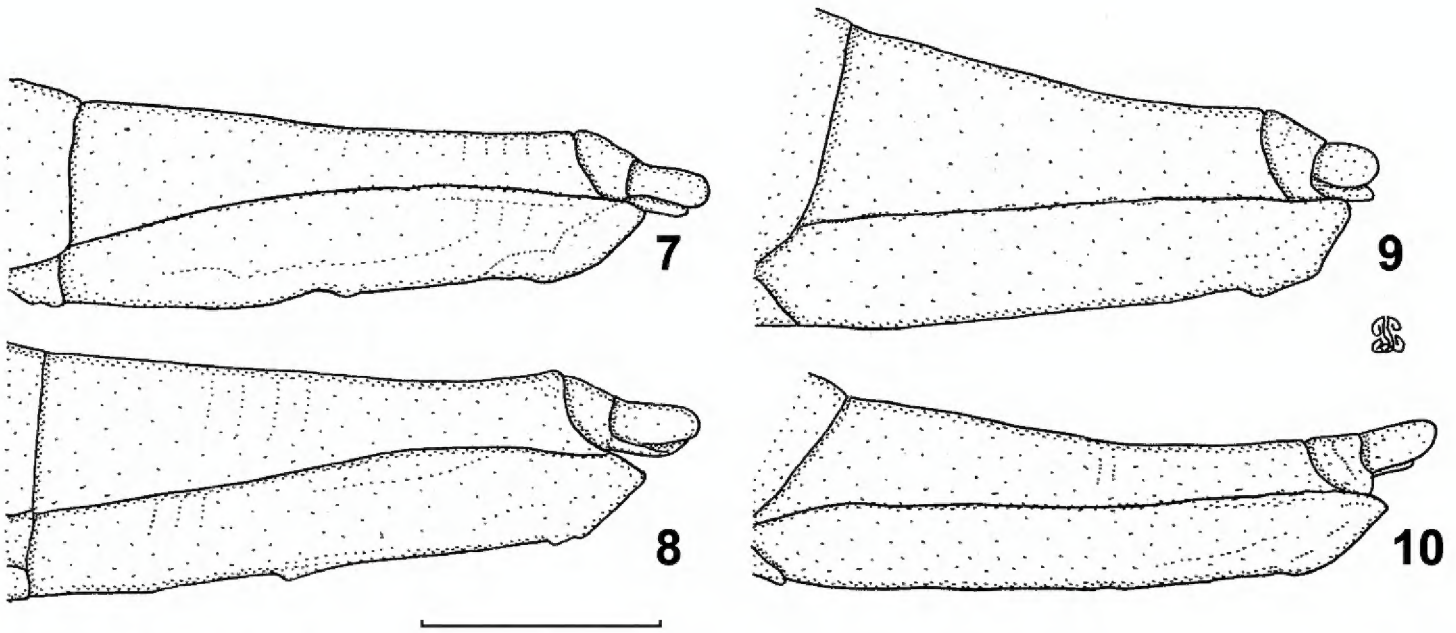
Gibbasilus arenaceus Londt, 1986: 2. figs 1 (habitus), 2 (antenna), 3 (wing), 4–7 (♂ terminalia), 8 (♀ ovipositor), 9–12 (pupa).

Description. The species was fully described by Londt (1986) who provided illustrations of the general habitus, antenna, wing, ♂ terminalia, ♀ ovipositor and pupa as indicated above. The species bears a strong resemblance to the newly described *crinitus* sp. n. (see below). A new illustration of the ♀ ovipositor is here provided for comparative purposes (Fig. 7). The length : depth ratio of the ovipositor = 4.0 : 1.

Material examined. SOUTH AFRICA: 1♀ paratype "South Africa, Cape Prov. / Botterkloof Pass [*c.* 31°40'S, 19°16'E 660 m], top of / Sept. 13, 1972, 3119Cd / 2230 ft., ME&BJ Irwin / White sand dune assoc." (NMSA)*; 4♂ 1♀ paratypes "Brandkop [*c.* 31°42'S, 19°07'E 875 m] Area / Calvinia District / South-West Cape / 14 October 1964 / B&P Stuckenberg" (NMSA, 1♂ BMNH)*; 6♂ 8♀ "S Africa, Cape #65 / 22 km S Vanrhynsdorp / 31°46'S, 18°46'E 600 m / Date: 23.xi.1991 / Coll: J.G.H. Londt / Gifberg Edge old land" (NMSA); 1♀ "S Africa, Cape #65 / 24 km S Vanrhynsdorp / 31°48'S, 18°46'E 600 m / Date: 3.xi.1991 / Coll: J.G.H. Londt / Gifberg. Flat summit" (NMSA); 1♂ holotype "South Africa, Cape Prov / 2.5 mi. S. Elandsbaai [*c.* 32°19'S, 18°21'E 10 m], 30 ft / Sept. 16, 1972, 3218Ad / ME&BJ Irwin, / Coastal sand dunes" (NMSA)*; 1♂ 1♀ paratypes "Pakhuis Pass [*c.* 32°09'S, 19°02'E 875 m] 950 m / Clanwilliam Dist. / 17–19 Oct 1964 / B+P Stuckenberg" (NMSA)*.

Remarks. This species bears a strong resemblance to *crinitus* sp. n., described below, but can be separated from that species on features of the male terminalia (inn particular the poorly developed pale setae found along the posterior margin of S8).

Distribution (Fig. 20A), phenology (Table 1) and biology. Known from six localities approximately centred on the towns of Vanrhynsdorp and Clanwilliam. Collected during the months of September, October and November. Specimens collected by me 22 km south of Vanrhynsdorp, on the road to the Gifberg, were found perching near the tops of the vertical stems of a tall unidentified plant species belonging to the family Restionaceae growing on the edge of an old ploughed field (31°46'16"S, 18°45'56"E 545 m). Although oviposition was not observed, it is probable that females use their knife-like ovipositors to insert eggs into suitable crevices found on these plants.



Figures 7–10. *Gibbasilus* species ♀ ovipositors. **7** *G. arenaceus* Londt, 1986 **8** *G. centrolobus* Londt, 1990 **9** *G. condylus* sp. n. **10** *G. crinitus* sp. n.

Gibbasilus brevicolis Londt, 1990

Fig. 20B

Gibbasilus brevicolis Londt, 1990b: 13. figs 3 (wing), 20–23 (♂ terminalia).

Description. The species was fully described by Londt (1990), based on the unique holotype ♂. Illustrations were provided of the wing and ♂ terminalia. No new material is available and the ♀ remains unknown. The species cannot be confused with other species, having distinctive ♂ terminalia.

Material examined. SOUTH AFRICA: 1♂ holotype "Pakhuis Pass [*c.* 32°08'S, 19°02'E 635 m], C.P. S.A.M., 9:1961 [ix.1961]" (SAM).

Distribution (Fig. 20B), phenology (Table 1) and biology. Known only from the type locality of Pakhuis Pass, a road to the east of Clanwilliam leading to the Biedouw Valley. Collected in September. No biological information is available. The pass is rocky and dominated by indigenous fynbos.

Gibbasilus centrolobus Londt, 1990

Figs 8, 20A

Gibbasilus centrolobus Londt, 1990b: 15. figs 4 (wing), 24–27 (♂ terminalia).

Description. The species was described by Londt (1990), based on a unique holotype ♂ specimen, and both the wing and ♂ terminalia were well illustrated. On re-examination it has been found that two paratypes of *arenaceus*, 1♀ and 1(sex unknown) lacking terminalia, listed below, were not conspecific and have been reallocated to *centrolobus*. The ♀ ovipositor (which is glued to the pin beneath the specimen) is here illustrated

(Fig. 8), its length : depth ratio = 3.6 : 1. These specimens appear to be correctly allocated to *centrolobus* as the wings are microtrichose and the only pale mystacal macrosetae are restricted to the epistomal margin. The ♂ of this species cannot be confused with other species as it has distinctive terminalia.

Material examined. SOUTH AFRICA: 1♂ holotype "Clan William [*c.* 32°12'S, 18°54'E 165 m] / ix-1928 / Dr. Brauns" (NMSA)*; 1♀ 1? (paratypes of *arenaceus*) "Van Rhyn's, – / Pass [*c.* 31°23'S, 19°01'E 620 m], 4-5 11'33 / G. van Son" (NMSA)*.

Distribution (Fig. 20A), phenology (Table 1) and biology. With the transfer of two specimens from *arenaceus* to *centrolobus* the species is now known from two localities. Collected in September and November. No biological information is available.

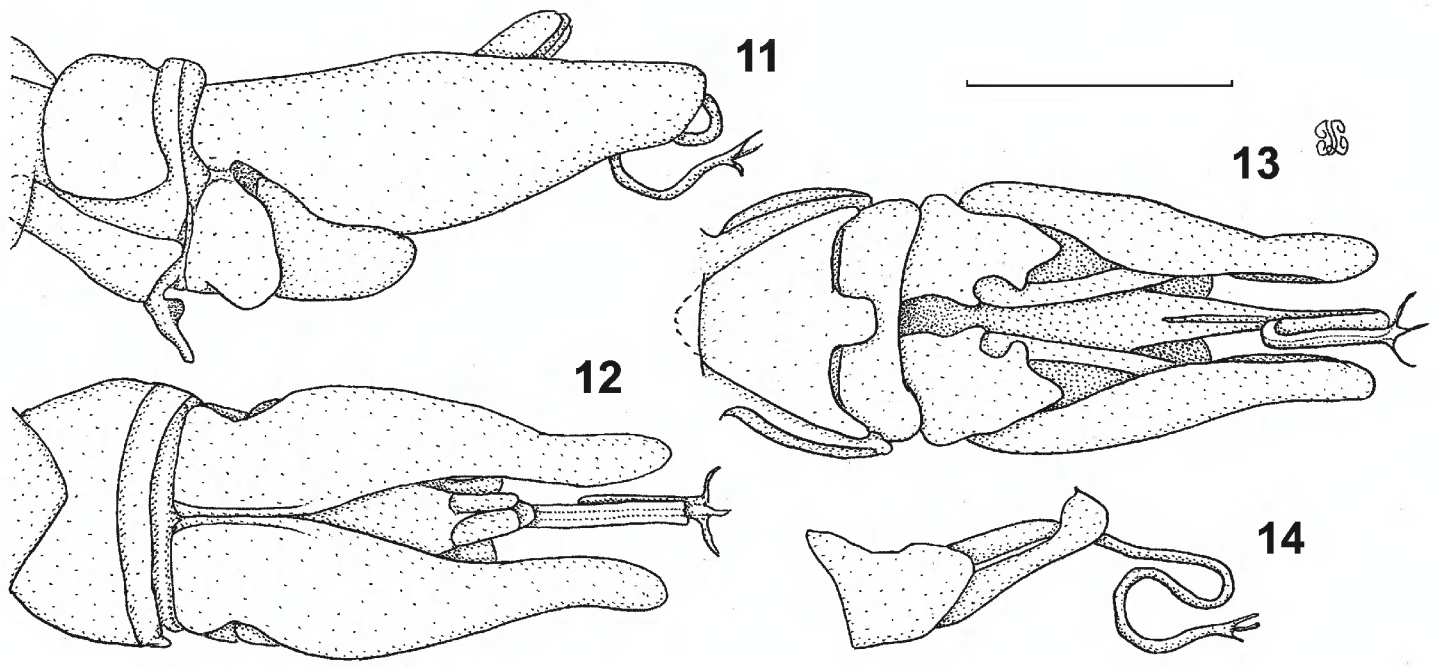
***Gibbasilus condylus* sp. n.**
http://zoobank.org/05FD0B63-7794-4BE7-8A88-57900F8A8B5A
Figs 9, 11–15, 20B

Etymology. L. m. *condylus* - prominence; refers to the lobed S8 in males.

Description. Based on 2♂ and 6♀.

Head: Black, silver pruinose, black, pale yellow and white setose. Antenna: Black, fine silver pruinose, scape and pedicel black setose. Segmental ratios (scape as 1) = 1 : 0.7 : 1.4 : 0.8 (style = 0.2, 0.5, 0.1). Style composed of three elements (small basal segment-like element, long middle rod-like element, terminal seta-like sensory element). Face black, fine silver pruinose, profile plane. Mystax long, well-developed, extending from epistomal margin to antennal sockets, macrosetae white along epistomal margin, otherwise black. Frons and vertex black, silver pruinose, fine, long, black setose. Ocellar tubercle with long, fine, black setae. Occipital region black, silver pruinose, black setose dorsally (may be a few orange), pale yellow laterally, fine white setose ventrally. Palpi 2-segmented, segment 1 white setose, 2 black setose. Proboscis shiny dark red-brown to black, fine white setose.

Thorax: Dark red-brown to black, fine, dull, silver pruinose, black, pale orange, pale yellow and white setose. Pronotum dark red-brown to black, white setose. Mesonotum black, entirely dull silver pruinose. Acrostichals numerous, mane-like, predominantly black except for few white setae anteriorly and a cluster of fine white setae posteriorly. Dorsocentrals well-developed, black, extending both anterior and posterior of transverse suture. Mesonotal macrosetae: Strong, orange and black, 2 npl (orange), 2 spal (black), 1 pal (black). Scutellum black, entirely silver pruinose; disc fine white setose, 2 long, black apical scutellar macrosetae. Pleura: Dark red-brown to black, entirely silver pruinose, pale yellow and white setose. Katatergal setae pale yellowish. Anatergites uniformly dull silver pruinose, asetose. Mediotergite weakly fine white setose medially. Legs: Coxae dark red-brown to black, fine, dull silver pruinose, fine white setose. Trochanters shiny black, apruinose, fine white setose. Femora slightly inflated, dark red-brown to black except for narrow orange distal tip, macrosetae mostly yellowish



Figures 11–14. *Gibbasilus condylus* sp. n. ♂ terminalia, lateral (**11**), dorsal (**12**), ventral (**13**), detail of gonostylus and aedeagus (**14**).

(except for 3–5 black proximoventral setae on fore femora). Tibiae mostly brown-orange becoming progressively darker distally, macrosetae mostly orange (a few black at distal tip). Tarsi dark red-brown with black and orange macrosetae. Claws dark red-brown to black, pulvilli and empodia well developed, brown-orange. Wings: ♂ 7.6 (7.4–7.8) × 2.6 mm, ♀ 7.6 (6.3–8.6) × 2.5 (2.1–2.9) mm. Veins brown, cells r_1, m_3, and cua closed and stalked, membrane unstained (wing tip may be slightly brown stained), entirely transparent and lacking microtrichia. Halter pale yellow to orange.

Abdomen: Entirely dark red-brown to black, extensively dull silver pruinose, except lateral margins of T2–5 and parts of S2–2 which are shiny apruinose. Terga fine short white setose except for narrow medial strip of fine black setae, T1–6 with 1–3 laterally situated pale yellow macrosetae (progressively diminishing in size and number towards terminalia). Sterna fine, longish setose. ♂ genitalia (Figs 11–14): Epandrium almost three times longer than deep in lateral view, with widest part proximal to mid-length; not very broadly rounded distally; lobes gradually diverging distally in dorsal view. Gonocoxite almost ⅓ as long as epandrium, smoothly rounded distally. Gonostylus elongate, almost half the length of epandrium, of approximately same width for entire length in ventral view, distally with a subtriangular upwardly directed process, best appreciated in lateral view. Hypandrium short, about four times as wide as long in ventral view, distal margin very slightly indented medially. Aedeagus long and thin, slightly dorsoventrally compressed, S-shaped distally, terminating in a 3-pronged tip. Posterior margin of S8 slightly indented medially with a terminal subrectangular, dorsoventrally compressed process projecting to approximately midlength of hypandrium. ♀ ovipositor (Fig. 9): Elongate, laterally compressed and knife-like. Length : depth ratio = 2.7 : 1 (more robust when compared with other species).

Figure 15. Typical habitat of both *Gibbasilus condylus* sp. n. and *G. crinitus* sp. n. – Kagga Kamma Nature Reserve, where both species may be found sympatrically.

Holotype. SOUTH AFRICA: 1♂ "South Africa W Cape / Kagga Kamma Nat. Res. / 32°45'12"S, 019°34'23"E / J&A Londt 12.xi.2015 / 1080 m Sandy vynbos" (NMSA).

Paratypes. 4♀ "S Africa, Cape #65 / 22 km S Vanrhynsdorp / 31°46'S, 18°46'E 600 m / Date: 23.xi.1991 / Coll: J.G.H. Londt / Gifberg Edge old land" (NMSA); 1♀ "S Africa, Cape #65 / 14 km NNW Citrusdal / 32°31'S, 18°58'E 300 m / Date: 1.xi.1991 / Coll: J.G.H. Londt / Woody plants; sandy" (NMSA); 1♀ with identical label data as holotype (NMSA); 1♂ "Michells Pass [*c.* 33°23'S, 19°18'E, 485 m] / Ceres Div.", "Museum Staff / Oct. 1934" (SAM).

Remarks. As mentioned earlier, this species bears a strong resemblance to *alboala* sp. n. (described above), but can easily be separated from that species as it has entirely transparent wing membranes, lacking the somewhat opaque, milky basal wing membranes diagnostic for *alboala*.

Distribution (Fig. 20B), phenology (Table 1) and biology. Known from four fairly widely separated localities. Collected during the months of October and November. Specimens collected by me, at three localities, were found perching near the tops of the vertical stems of a tall unidentified species belonging to the Restionaceae or sunning themselves on stones. A typical habitat at the Kagga Kamma Nature Reserve is illustrated (Fig. 15). Although oviposition was not observed, it is probable that females use their knife-like ovipositors to insert eggs into suitable crevices found on these plants. The species is found sympatrically with *crinitus*.

***Gibbasilus crinitus* sp. n.**
http://zoobank.org/5C15CE4B-D8F6-44BA-B801-9DC676F0AA8A
Figs 1, 10, 15–20A

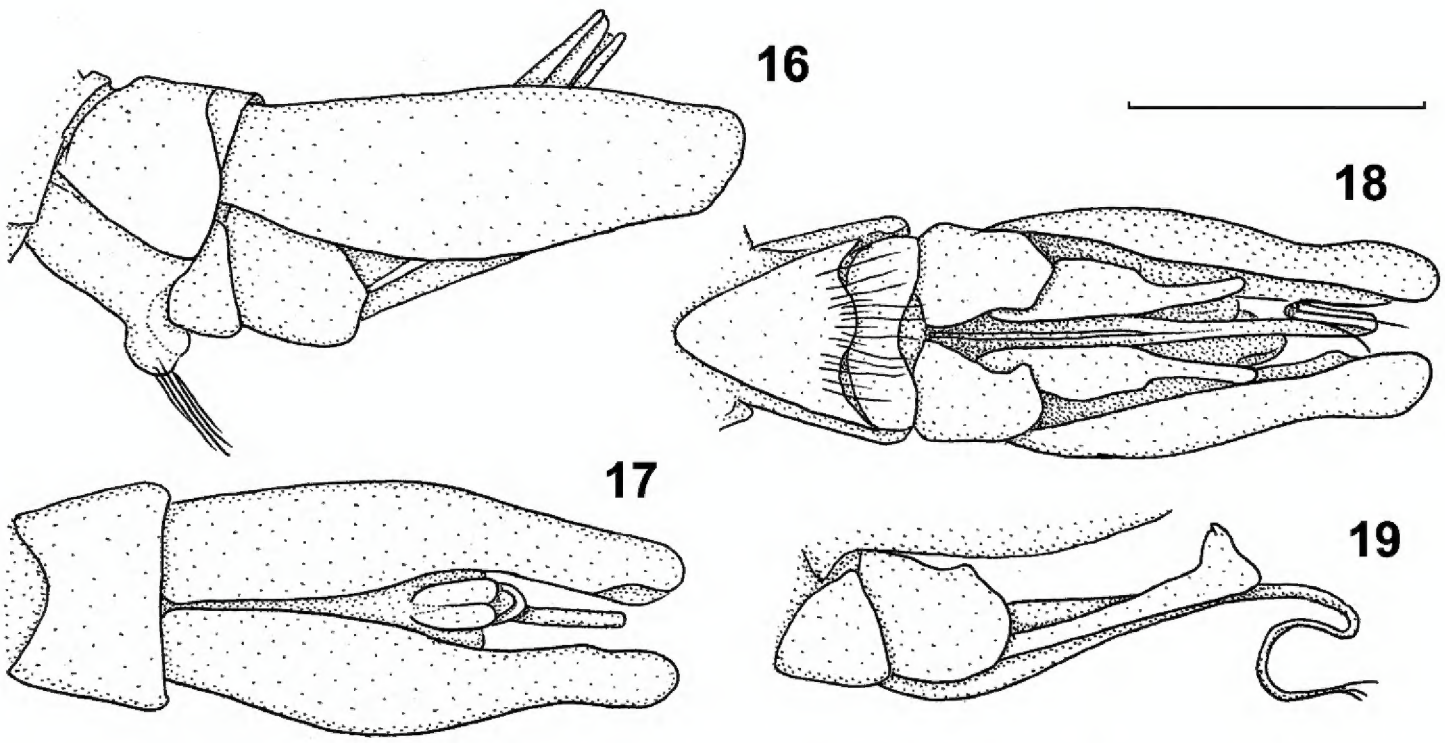
Etymology. L. m. *crinitus* – hairy; refers to the mediodistal cluster of black setae found on S8.

Description. Based on type series consisting of 5♂ 3♀.

Head: Black, fine silver pruinose, black and white setose. Antenna: Black, fine silver pruinose, scape and pedicel black setose. Segmental ratios (scape as 1) = 1 : 0.6 : 1.5 : 0.7 (elements of style = 0.2, 0.4, 0.1). Style composed of three elements (small basal segment-like element, long middle rod-like element, terminal seta-like sensory element). Face black, silver pruinose, profile plane. Mystax long, well-developed, extending from epistomal margin to antennal sockets, macrosetae black (laterally) and white (centrally) down entire depth of face. Frons and vertex black, weakly silver pruinose, fine, long, black setose. Ocellar tubercle with long, fine, black setae. Postocular (occipital) region black, silver pruinose, mostly black setose dorsally, white laterally and ventrally. Palpi 2-segmented, segment 1 white setose, 2 black setose. Proboscis shiny black, fine white setose.

Thorax: Dark red-brown to black, silver pruinose, black, pale yellow and white setose. Pronotum dark red-brown to black, white setose. Mesonotum black, entirely fine silver pruinose. Acrostichals numerous, mane-like, predominantly black except for a few white setae anteriorly and a cluster of fine white setae posteriorly. Dorsocentrals well-developed, black, extending both anterior and posterior of transverse suture. Mesonotal macrosetae: Strong, pale yellow, 2 npl, 2 spal, 1 pal. Scutellum black, entirely dull silver pruinose; disc fine white setose, 2 long, pale yellow apical macrosetae. Pleura: Dark red-brown to black, entirely dull silver pruinose, white setose. Katatergal setae weak, white. Anatergites uniformly dull silver pruinose, asetose. Mediotergite fine white setose medially. Legs: Coxae Dark red-brown to black, fine, dull silver pruinose, fine white setose. Trochanters shiny black, apruinose, fine white setose. Femora slightly inflated, entirely dark red-brown to black, macrosetae mostly black (except for a few pale orange anterodorsally on mes- and metathoracic femora). Tibiae orange except for dark red-brown to black distal quarter, macrosetae mostly black (a few orange). Tarsi dark red-brown with black macrosetae (except for a few yellow on Tar 1). Claws dark red-brown to black, pulvilli and empodia well developed, brown. Wings: ♂ 7.2 (6.3–7.7) × 2.4 (2.1–2.6) mm, ♀ 6.6 (6.2–7.3) × 2.1 (2.1–2.2) mm. Veins dark red-brown to black, cells r_1, m_3, and cua closed and stalked, membrane unstained, entirely transparent except for slight opaqueness resulting from presence of microtrichia primarily distally and broadly along hind margins. Halter pale yellow to orange.

Abdomen: Entirely dark red-brown to black, extensively dull silver pruinose, weakly along lateral margins of T2–4 and S2–4 which are shiny apruinose. Terga fine short white setose except for narrow mid-dorsal strip of tiny black setae, T1–5 with 2–3 laterally situated pale yellow, weak macrosetae (progressively diminishing in size towards terminalia). Sterna fine, longish setose.



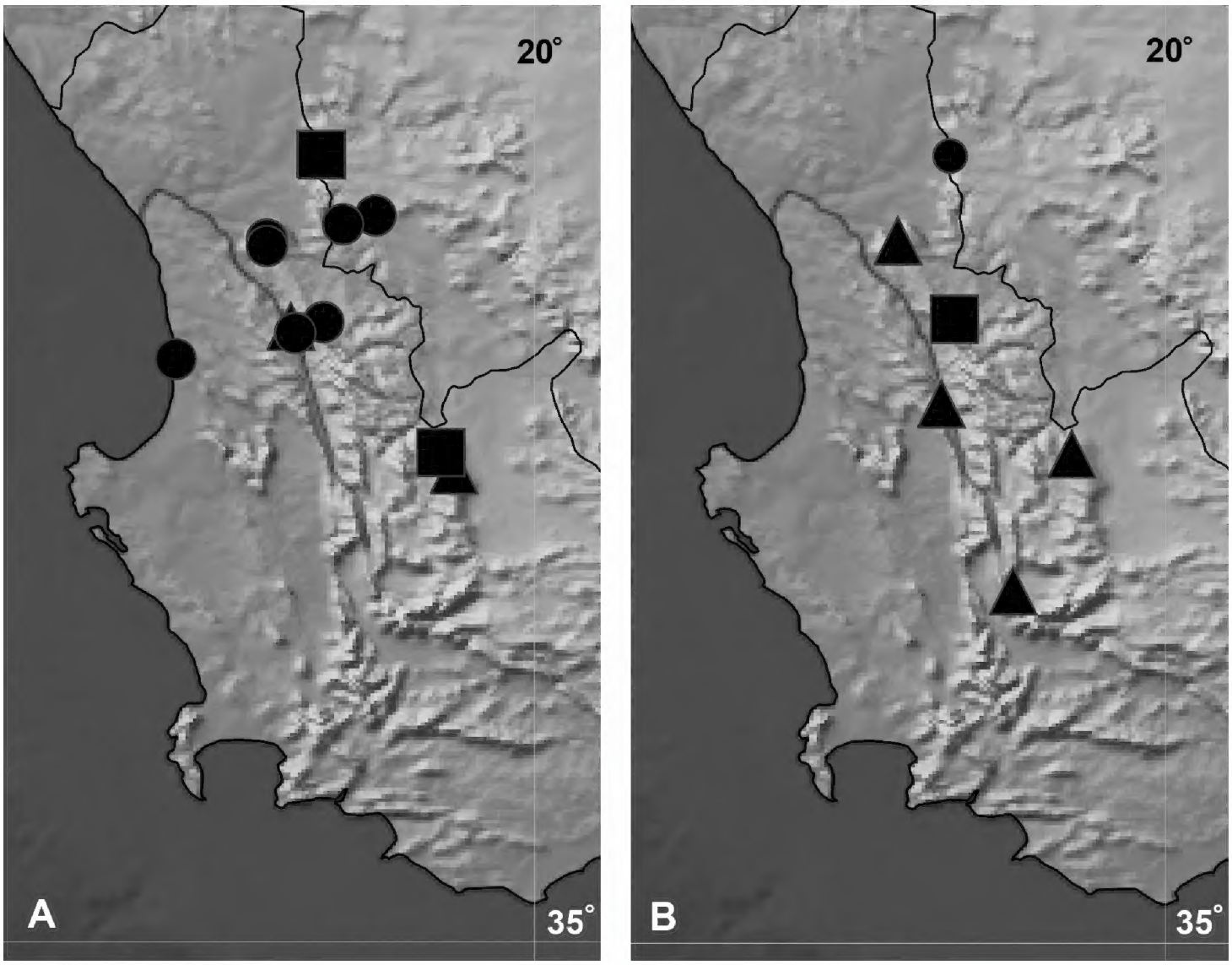
Figures 16–19. *Gibbasilus crinitus* sp. n. ♂ terminalia, lateral (**16**), dorsal (**17**), ventral (**18**), detail of gonostylus and aedeagus (**19**).

Abdomen: Entirely dark red-brown to black, extensively dull silver pruinose, except lateral margins of T2–3 which are shiny apruinose. Terga fine short white setose, T1–4 with 1–2 laterally situated pale yellow macrosetae (progressively diminishing in size towards terminalia). Sterna fine, longish setose. ♂ genitalia (Figs 16–19): Epandrium three times longer than deep in lateral view, with widest part at approximately mid-length; fairly broadly rounded distally; converging slightly subapically in dorsal view. Gonocoxite one-third as long as epandrium, smoothly rounded distally. Gonostylus elongate almost half the length of epandrium, broad basally in ventral view, tapering distally to an upwardly directed process seen in lateral view. Hypandrium short, about half as long as gonocoxite in lateral view, posterior margin slightly indented medially. Aedeagus long and thin, S-shaped distally, terminating in a 3-pronged tip. Posterior margin of S8 with a medial, rounded swelling bearing a row of fairly long black setae. ♀ ovipositor (Fig. 10): Elongate, laterally compressed and knife-like. Length : depth ratio = 4.7 : 1.

Holotype. SOUTH AFRICA: 1♂ "South Africa W Cape / Kagga Kamma Nat. Res. / 32°45'12"S, 019°34'23"E / J&A Londt 12.xi.2015 / 1080 m Sandy vynbos" (NMSA).

Paratypes. SOUTH AFRICA: 2♂ 1♀ "South Africa, C.P. / Clanwilliam, 32°10'S, 18°53'E. 30.ix.1986 / M.W. Mansell & J.H. / Hoffmann", "Collected / at light" (NMSA);# 1♂ 1♀ with identical label data as holotype (NMSA); 1♂ 1♀ "South Africa W Cape / 13 km S Kagga Kamma / 32°49'42"S, 019°37'32"E / J&A Londt 8.xi.2015 / 1270 m Rocky, restios" (NMSA).

Remarks. This species bears a strong resemblance to *arenaceus*, but can be separated from that species on features of the male terminalia (mainly on the well-developed black setae found along the posterior margin of S8). While *crinitus* sp. n. may



Figures 20. *Gibbasilus* maps of distribution. **A** *arenaceus* (●), *centrolobus* (■), *crinitus* sp. n. (▲) **B** *alboala* (●), *brevicolis* (■), *condylus* sp. n. (▲).

eventually prove to be a variant of *arenaceus* there is presently insufficient material to verify that possibility. It should be noted that the material collected at Clanwilliam was recorded previously by Londt (1990) under the name *arenaceus*.

Distribution (Fig. 20A), phenology (Table 1) and biology. Known only from three localities. Collected in September and November. Specimens collected by me were taken resting on the stems of an unidentified species of Restionaceae or sunning themselves on rocks. The species being found sympatrically with *condylus*, the general habitat being illustrated in Fig. 15.

Key to species of *Gibbasilus*

1 Wings microtrichose distally, and broadly along posterior margins **2**
– Wings entirely lacking microtrichia **4**
2 Mystax composed of black and white (or pale yellow) setae mixed down entire facial profile **3**
– Mystax with white (or pale yellow) setae confined to ventral region of face around epistomal margin ..... ***centrolobus* Londt, 1990**

3 Males with posterior margin of S8 bearing short, pale yellow setae medially... ..... ***arenaceus* Londt, 1986**

– Males with posterior margin of S8 bearing longish, black setae medially..... .....***crinitus* sp. n.**

4 Wing membrane entirely transparent.....**5**

– Wings basally with membrane milky white, opaque..... ***alboala* sp. n.**

5 Males with posterior margin of S8 with a well-defined distomedial projection; gonostylus long and narrow in lateral view; aedeagus highly convoluted; gonocoxite smoothly rounded distally..... ***condylus* sp. n.**

– Males with posterior margin of S8 lacking a distomedial projection; gonostylus short and broad in lateral view; aedeagus simply bowed and not highly convoluted; gonocoxite with dorsoventrally compressed distal projection .... ***brevicolis* Londt, 1990**

Discussion

Taxonomy: With the description of three new species, *Gibbasilus* is now represented by six species. With the discovery that only three of these possess microtrichose wing membranes the genus can be split into two groups as demonstrated in the key. Females are now known for four species and it is of interest that all those with microtrichose wings (*arenaceus*, *centrolobus*, *crinitus*) possess slender ovipositors (length : depth ratios ranging from 3.64.7 – 1). *G. condylus*, on the other hand, has a more robust ovipositor (length : depth ratio of 2.7 : 1) which might suggest that when females of *alboala* and *brevicolis* are discovered that these too will possess fairly robust ovipositors.

Distribution and biology: *Gibbasilus* is confined to a rather small region of the Western Cape Province of South Africa (Fig. 20). Adult activity appears to be confined to the spring months of September through to November (Table 1) in this winter rainfall region of southern Africa. The majority of known localities appear to have a number of things in common – relatively high altitudes, rocky outcrops and a habitat dominated by plants belonging to the family Restionaceae, an important defining family within the Cape Floristic Region's, fynbos plant community (Linder et al. 2003). Apart from a few individuals being found sunning themselves on rocks, virtually all specimens collected by me were resting on the stems of tall restios (often on the higher stems). This might suggest that females are adapted to oviposit on these specific plants. It can, therefore, be confidently predicted that *Gibbasilus* may well be a far more dominant group of asilids than available records suggest.

Acknowledgements

The University of KwaZulu-Natal is thanked for allocating funding in support of my research, as is the National Research Foundation (NRF) of South Africa. The KwaZulu-

Natal Museum continues to provide various services and Mr Burger Muller, in particular, is thanked for his significant contribution in supplying photographs and generating distribution maps. Finally, my wife, Ann, is thanked for her valuable assistance and support.

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